

8.3 Area of Squares and Rectangles

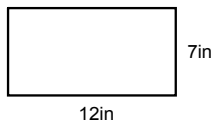
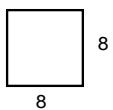
8.4 Area of Triangles

Formulas

Area of Square =

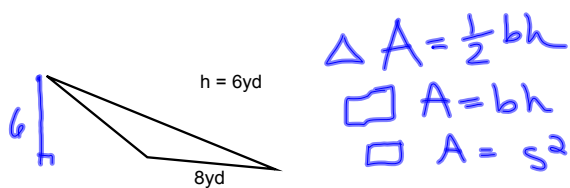
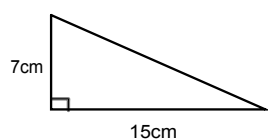
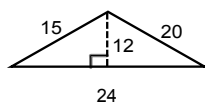
Area of a Rectangle =

Area of a Triangle =



gsp1

gsp



$$\triangle A = \frac{1}{2}bh$$

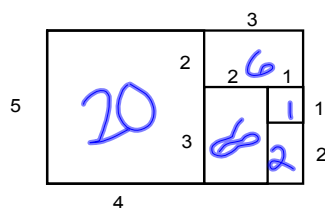
$$\square A = bh$$

$$\square A = s^2$$

$$A = \frac{1}{2}bh$$

$$\frac{1}{2}6 \cdot 8 = 24 \text{ yd}^2$$

Find the area of each rectangle.

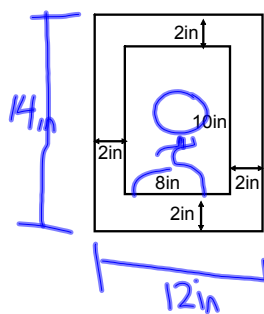


$$20 + 6 + 6 + 1 + 2 = 35 \text{ u}^2$$

What is the area of the picture?

$$8 \times 10 = 80 \text{ in}^2$$

What is the area of the frame?



$$A_{\text{frame}} = 80$$

$$14 \cdot 12$$

$$168 - 80$$

$$= 88 \text{ in}^2$$

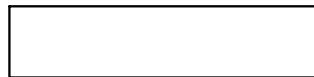
$$\text{Area} = 49\text{cm}^2$$

$$\text{side} = \underline{7\text{cm}}$$



$$\begin{aligned} A &= s^2 \\ \sqrt{49} &= \sqrt{s^2} \\ 7 &= s \end{aligned}$$

12in



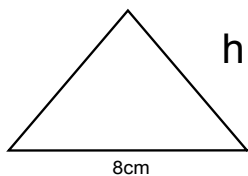
$$\text{Area} = 36\text{in}^2$$

$$\text{height} = \underline{3\text{in}}$$

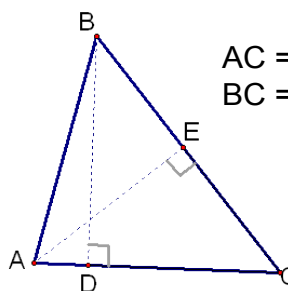
$$\begin{aligned} A &= bh \\ \frac{36}{12} &= \frac{12h}{12} \\ 3 &= h \end{aligned}$$

$$A = 24\text{ cm}^2$$

$$h = \underline{6\text{cm}}$$



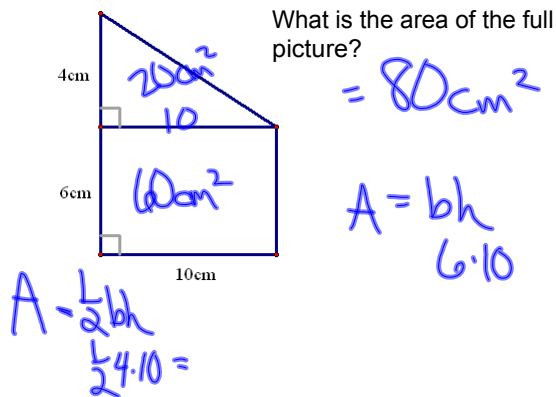
$$\begin{aligned} A &= \frac{1}{2}bh \\ 24 &= \frac{1}{2}8h \\ 24 &= 4h \\ 6 &= h \end{aligned}$$



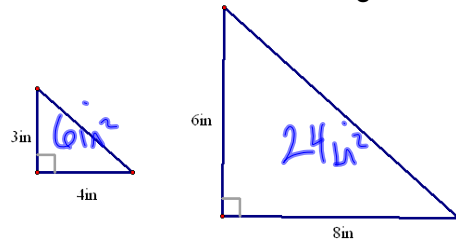
$$\begin{aligned} AC &= 12 \\ BC &= 16 \end{aligned}$$

$$\begin{aligned} BD &= 12 \\ AE &= 9 \end{aligned}$$

Which is the base?
Which is the height?



Find the area of each triangle.



Are the triangles similar? *yes*

What is the scale factor? *1:2*

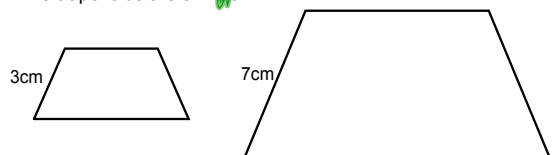
What is the ratio of the areas? *1:4*

6:24

1:2
1:4

Theorem 8.3
Areas of Similar Polygons
Two similar polygons with a scale factor of $a:b$,
have a ratio of areas of $a^2 : b^2$.

The trapezoids are similar.



What is the scale factor? *3:7*

What is the ratio of the areas? *9:49*

Attachments

8_3_4notes_tri.gsp

Area.gsp